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Chlamydial infection in homosexual men

Frequency of isolation of Chlamydia trachomatis from the urethra, ano-rectum, and pharynx

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SUMMARY Urethral, rectal, and pharyngeal material from 150 men who had had exclusively homosexual contact and who consecutively attended a sexually transmitted diseases clinic was cultured for *Chlamydia trachomatis*. The organism was isolated from at least one site in 15 (10%) patients. The isolation rates from the urethra, rectum, and pharynx were 6·7%, 4%, and 1·3% respectively.

Introduction

There is now strong evidence that *Chlamydia trachomatis* is sexually transmissible.[1 2] The organism may be isolated from the urethra of about 50% of men with nongonococcal urethritis[3 4] and from the cervix of about 65% of their sexual partners.[4 5]

The transmission of *C trachomatis* among homosexual men has been less well documented. It was the purpose of the present study to ascertain the prevalence of infection at various sites in men attending a sexually transmitted diseases clinic and who had had homosexual contact.

Patients and methods

STUDY POPULATION

One hundred and fifty men, who over a two-year period had consecutively attended the department of genitourinary medicine in Glasgow and who had had exclusively homosexual contact within the preceding 12 months, were investigated. Patients who had received antimicrobial therapy within three months of their attendance were not included in the study.

Symptoms of sore throat, urethral discharge, dysuria, anal discomfort, pain, discharge, or bleeding were noted, as was the presence of mucopus in the rectum and the presence or absence of the normal vascular pattern. As observers can vary considerably in their descriptions of the appearance of the rectal mucosa, and as more than two doctors participated in the study, the degree of erythema of the rectal mucosa or of the pharynx was not recorded. A diagnosis of urethritis was made when five or more pus cells were seen in each of 10 2-mm oil-immersion microscopic fields.

COLLECTION OF SPECIMENS

Specimens for culture of *C trachomatis* were taken from the pharynx, urethra, and rectum of each patient. Pharyngeal material was obtained by firmly rolling a sterile cottonwool pledget, mounted on wire (ENT swab, Medical Wire and Equipment Co Ltd, Corsham, Wilts), over the tonsils (or fossae) and posterior pharynx. Urethral specimens were taken by inserting a similar swab into the anterior urethra to a distance of about 8 cm and carefully scraping the walls of the urethra. Rectal material was collected under direct vision through a proctoscope by abrading the mucosa. In each case the swab was inserted into transport medium (CTM, Northumbria Biologicals Ltd, Cramlington) and after collection held at 4°C until transferred to the laboratory. The mean interval between specimen collection and transfer to the laboratory was six hours (range 3-18 hours). Clinical specimens in CTM were stored at −70°C if prolonged storage was necessary.

Similar specimens were obtained for culture for *Neisseria gonorrhoeae*,[6] and serological tests for syphilis were performed for each patient.

TISSUE CULTURE

McCoy cell monolayers were prepared on 13-mm diameter glass coverslips by seeding $1{\cdot}5 \times 10^5$ cells/ml suspended in growth medium (medium 199, 10% fetal bovine serum plus appropriate bicarbonate and antibiotics). The cells were incubated for 24 hours in a 5% CO_2/air atmosphere at 37°C. On the day of inoculation, specimens were thawed at 37°C and sonicated for 30 minutes in a Dawe sonicleaner

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(Dawe Instruments, London). Growth medium was removed from the McCoy cell culture and replaced with growth medium containing cycloheximide (1 μg/ml). Of the sonicated clinical material 0·2 ml was inoculated by pipette on to McCoy cells and centrifuged at 2500 rev/min at 22°C for one hour (MSE GF8). The inoculated material was incubated for 48 hours at 37°C in a 5% CO_2/air atmosphere.

Coverslips fixed in methanol were stained by Giemsa and examined by darkground microscopy for the presence of cytoplasmic inclusions typical of type A chlamydial infection.

Results

The mean age of the patients studied, who were all Caucasian, was 26·7 years (range 14-50 years). The diagnoses made in this group of patients at their initial attendance are shown in table I.

TABLE I *Presenting diagnoses made in 150 male homosexual patients*

Diagnosis	*No of patients*
Early syphilis	10
Gonorrhoea	
Urethral	31
Anorectal	24
Oropharyngeal	3
Nongonococcal urethritis	15
Sarcoptes scabiei infestation	8
Phthirus pubis infestation	4
Herpesvirus hominis infection	1
Hepatitis B	2
Condylomata acuminata	
Penile	3
Perianal	3
Molluscum contagiosum	1
Giardia lamblia infection	2
Entamoeba histolytica infection	2
Enterobius vermicularis infection	1
No infection detected	59

CHLAMYDIAL ISOLATION

Urethra

C trachomatis was isolated from the urethra of 10 (6·7%) of the 150 patients. Four of these men had urethral gonorrhoea, two had nongonococcal urethritis, and four had no clinical evidence of urethritis.

Rectum

Rectal chlamydial infection was found in six (4%) men, none of whom had symptoms referrable to the anal region. Mucopus was seen in the rectum of two of the six men; *N gonorrhoeae* was isolated from the rectum of both.

Pharynx

Chlamydia were isolated from two (1·3%) men, one of whom had concomitant urethral and rectal infection. These men had no symptoms of pharyngitis, and none had conjunctivitis.

The clinical and laboratory findings in the 15 men from whom *C trachomatis* was isolated are given in table II. Of the 133 men from whom *C trachomatis* was not isolated from any site, five were sexual contacts of men with chlamydial urethritis.

Discussion

In this group of homosexual men, chlamydial infection of the pharynx was uncommon (1·3%). It was of interest that in each case *C trachomatis* was isolated from the urethra of a sexual contact. Bowie and his colleagues[7] were unable to isolate *C trachomatis* from the pharynx of 11 women who practised fellatio with men who had chlamydia-associated urethritis. The organism has, however, been isolated from the pharynx of a female sexual partner of a man with recurrent nongonococcal urethritis[8]; this woman had the clinical features of pharyngitis. Goldmeier and Darougar[9] cultured *C trachomatis* from the pharynx of a homosexual man who attended with chlamydia-negative urethritis. As in our study, the latter patient had no symptoms referrable to the throat.

Proctitis has been described in mothers of babies with chlamydial conjunctivitis,[10] and *C trachomatis* has been isolated from the rectum of homosexual men.[2 9] Interestingly, in one asymptomatic patient described by Goldmeier and Darougar,[9] the rectal mucosa was congested and, using an operating microscope, numerous follicles were demonstrated similar to those seen in the conjunctiva of patients with chlamydial conjunctivitis. None of the patients in the present study had anal discomfort, discharge, or bleeding; operating microscope facilities were not available, but sigmoidoscopy in each case showed a normal vascular pattern with no mucosal ulceration. Mucopus was seen in the rectum of only two men with rectal chlamydial infection; both had concomitant infection with *N gonorrhoeae*. *C trachomatis* was isolated from the rectum of only two (8%) of 24 men with rectal gonorrhoea. Urethral chlamydial infection, however, is associated with about 20% of infections with gonococcal urethritis.[3]

The isolation of *C trachomatis* from the urethra of patients with nongonococcal urethritis appears to be significantly less common in men who have had exclusively homosexual contact than in those who have had heterosexual activity.[3 11] Although Schachter[2] has not isolated the organism from the urethra of any homosexual man, Oriel and others in a small series[3] cultured *C trachomatis* from the urethra of five (22%) of 23 homosexual men with gonococcal urethritis. The present series included insufficient numbers of patients with urethritis to allow firm conclusions to be drawn.

TABLE II *Clinical and laboratory data on 15 male homosexual patients from whose urethra, rectum, or pharynx C trachomatis was isolated*

Patient No	Age	Past history of STD	Presenting feature	No of partners in preceding six months	Results of culture for C trachomatis			Results of culture for N gonorrhoeae			Comments
					Urethra	Rectum	Pharynx	Urethra	Rectum	Pharynx	
1	25	Hepatitis B	*	4	−	+	−	−	−	−	
2	48	Urethral gonorrhoea	Contact urethral gonorrhoea	3	+	+	+	−	−	−	Contact had urethral chlamydial and gonococcal infection
3	26		Urethritis	4	+	−	−	−	−	−	
4	22	Urethral gonorrhoea	*	5	−	+	−	−	+	−	
5	26	Urethral gonorrhoea	Scabies	2	−	+	−	+	−	−	
6	25	Urethral gonorrhoea and NGU	Urethritis	3	+	−	−	−	−	−	
7	28		*	1	+	−	−	−	−	−	Contact of case 1
8	27		Urethritis	1	−	−	+	−	−	−	Contact of case 3
9	22	NGU	*	8	−	+	−	−	+	−	
10	27	Urethral gonorrhoea	Urethritis	3	+	−	−	+	+	−	
11	41	Hepatitis B, NGU, and urethral gonorrhoea	Urethritis	5	+	−	−	+	−	−	
12	33	NGU	Urethritis	2	+	−	−	+	−	−	
13	30		*	4	+	−	−	−	−	−	
14	24	Urethral gonorrhoea	Urethritis	1	+	+	−	−	−	−	
15	27	Rectal gonorrhoea and anal warts	Contact urethral gonorrhoea	3	+	−	−	−	−	−	

+ Positive, − negative
NGU = nongonococcal urethritis
*Patient attended for routine examination to exclude STD

It is likely that, as in the case of pharyngeal and rectal gonorrhoea,[6] repeated testing would identify more infected individuals. Nonetheless, the available data suggest that, among men who have had homosexual contact, rectal and pharyngeal chlamydial infection is uncommon. Homosexual men who attend sexually transmitted diseases clinics have often had sexual activity with numerous partners. The low chlamydial isolation rate from the pharynx and rectum is of interest when data regarding women who have had multiple contacts are considered, because Richmond[5] isolated *C trachomatis* from the cervix of 19% of women attending a clinic. It is possible that the pharyngeal and rectal mucosa are less well suited to colonisation by chlamydia than urethral and cervical epithelium. In this respect the experimental work of Jacobs and his colleagues[12] is pertinent. Although they successfully infected the urethral mucosa of three adult chimpanzees, much larger inocula of *C trachomatis* were necessary to establish infection in the pharynx; pharyngeal colonisation occurred in only two of the three animals.

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